# A study of association of metabolic syndrome and psoriasis at tertiary health care centre

T V Ramana Rao<sup>1\*</sup>, Prathyusha Y<sup>2</sup>, Ajay Kumar Reddy Bobba<sup>3</sup>

<sup>1,2</sup>Assistant Professor, Department of Dermatology, Gayatri Vidya Parishad Institute of Health care and Medical Technology, INDIA. <sup>3</sup>Assistant Professor, Department of Community Medicine, Pinnamaneni Siddardha Institute of Medical Sciences, INDIA. **Email:** <u>drtvramanarao94404@gmail.com</u>

## <u>Abstract</u>

**Background:** Psoriasis is now considered as a systemic inflammatory disease. The chronic inflammatory nature of psoriasis has been suggested to be a contributing and potentially independent risk factor for development of MS. **Aims and Objectives:** To Study association of metabolic syndrome and psoriasis at tertiary health care centre. **Methodology:** After approval from institutional ethical committee this cross-sectional study was carried out at the department of Skin and VD of a tertiary health care centre during one year period i.e. June 2017 to June 2018 in the patients with Psoriasis were studied. All details of the patients like age, sex etc. were noted. The statistical analysis was done by chi-square test and unpaired t-test, was analyzed by SPSS 18 version. **Result:** The age distribution both the group was comparable i.e. average age both the group was 7 ±3.16 and 7 ±4.95 respectively. (p>0.05). The male to female ratio in group A was 1.91:1 and in Group B was 1.18: 1 was comparable to each other (p>0.05). The disease duration in patients with Metabolic syndrome was 9±5.12 Yrs. and 4±2.34 Yrs. was significantly higher (t = 5.2546, df = 68, p<0.0001). As per the PASI score the severity of psoriasis was significantly more in the patients with Metabolic syndrome ( $\chi^2$  = 6.898, df=1, p< 0.0086), as per the area of body affected by BSA score; the significantly more area was affected in the patients with metabolic syndrome ( $\chi^2$  = 8.289, df=1, p< 0.004). **Conclusion:** It can be concluded from our study that severity of the psoriasis and area of affected was significantly associated with the Metabolic syndrome.

Key Words: Metabolic Syndrome (MS), Psoriasis Area and Severity Index (PASI), Body surface area (BSA).

#### \*Address for Correspondence:

Dr. T V Ramana Rao, Assistant Professor, Department of Dermatology, Gayatri Vidya Parishad Institute of Health care and Medical Technology, INDIA.

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# **INTRODUCTION**

Psoriasis is now considered as a systemic inflammatory disease. The chronic inflammatory nature of psoriasis has been suggested to be a contributing and potentially independent risk factor for development of MS.<sup>1</sup>Several studies has shown an association between psoriasis and MS. Most of these were of cross sectional design. There have been only a few case control studies addressing the

issue.<sup>1,2,3,4,5,6</sup> Only a few studies from India have used the revised population specific criteria for diagnosis of MS.<sup>2,3,6</sup> A recent study concluded that inclusion of modified waist circumference and specific body mass index (BMI) cut offs for Asians may help predict MS at an early stage.<sup>7</sup> So we have studied the association of metabolic syndrome and psoriasis at tertiary health care centre.

# **MATERIAL AND METHODS**

After approval from institutional ethical committee this cross-sectional study was carried out at the department of Skin and VD of a tertiary health care centre during one year period i.e. June 2017 to June 2018 in the patients with Psoriasis were studied. Metabolic syndrome was diagnosed by the presence of three or more of the five criteria of the National Cholesterol Education Program Adult Panel III (ATP III): Waist circumference >102 cm in men or >88 cm in women; hypertriglyceridemia, >1.7

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mmol/L (150 mg/dL); HDL cholesterol 130/85 mmHg; fasting plasma glucose of >6.1 mmol/L (100 mg/dL). Those patients who shown above features were included into Group A (with Metabolic Syndrome) were 35, Group B without metabolic syndrome were 35 allotted randomly. Severity of psoriasis was assessed according to Psoriasis Area and Severity Index (PASI) and body surface area (BSA)<sup>10</sup>. All details of the patients like age, sex etc. were noted. The statistical analysis was done by chi-square test and unpaired t-test, was analyzed by SPSS 18 version.

## **RESULT**

Table 1: Distribution of the patients as per the age				
Age (Yrs)	Group A (n=35)	Group B (n=35)		
20-30	5	3		
30-40	11	13		
40-50	9	10		
50-60	7	8		
>60	3	1		
Total	35	35		
Mean	7	7		
SD	3.16	4.95		

The age distribution both the group was comparable i.e. average age both the group was 7  $\pm$ 3.16 and 7  $\pm$ 4.95 respectively. (p>0.05)

Table 2: Sex wise distribution of the patients				
Sex	Group A (n=35)	Group B (n=35)		
Male	23	19		
Female	12	16		
Total	35	35		

The male to female ratio in group A was 1.91:1 and in Group B was 1.18:1 was comparable to each other (p>0.05)

**Table 3:** Distribution of the patients as per the Severity of Psoriasis

Characteristic	Group A ( n=35)	Group B (n=35)	Statistics
Disease duration (Yrs.)	9±5.12	4±2.34	t = 5.2546, df = 68, p<0.0001
PASI <15	27	11	χ <sup>2</sup> = 6.898, df=1,p<
PASI >15	8	14	0.0086
BSA<10	25	13	χ <sup>2</sup> =8.289,df=1,p<
BSA >10	10	22	0.004

The disease duration in patients with Metabolic syndrome was 9±5.12 Yrs. and 4±2.34 Yrs. was significantly higher (t = 5.2546, df = 68, p<0.0001). As per the PASI score the severity of psoriasis was significantly more in the patients with Metabolic syndrome ( $\chi^2$  = 6.898, df=1,p< 0.0086), as per the area of body affected by BSA score ; the significantly more area was affected in the patients with metabolic syndrome ( $\chi^2$ =8.289,df=1,p< 0.004).

#### DISCUSSION

Psoriasis is a chronic immune-mediated inflammatory disorder affecting 1%-3% of the general population. Metabolic syndrome (MS) which encompasses the namely, central obesity, following, atherogenic dyslipidemia, hypertension, and glucose intolerance, is considered to arise from insulin resistance and abnormal adipose tissue function.8 Chronic inflammation with persistent elevation of proinflammatory cytokines forms the crux of MS. Various immune mediators such as leptin, adiponectin, tumor necrosis factor-alpha (TNF- $\alpha$ ), and interleukin (IL)-6 have been regarded to play an important role in insulin resistance and therefore in psoriasis pathogenesis associated with MS.<sup>9</sup> The age distribution both the group was comparable i.e. average age both the group was  $7 \pm 3.16$  and  $7 \pm 4.95$  respectively. (p>0.05). The male to female ratio in group A was 1.91:1and in Group B was 1.18 : 1 was comparable to each other (p>0.05). The disease duration in patients with Metabolic syndrome was  $9\pm5.12$  Yrs. and  $4\pm2.34$  Yrs. was significantly higher (t = 5.2546, df = 68, p<0.0001). As per the PASI score the severity of psoriasis was significantly more in the patients with Metabolic syndrome ( $\chi^2$  = 6.898, df=1,p< 0.0086), as per the area of body affected by BSA score ; the significantly more area was affected in the patients with metabolic syndrome ( $\chi^2$ =8.289,df=1,p< 0.004). These findings are similar to Chintaginjala Aruna<sup>10</sup> Metabolic syndrome was signifi cantly more common among patients with psoriasis than among controls [42% vs 22%, odds ratio (OR) = 2.5674, P < 0.0028] also Some other studies have reported an increased prevalence of MS in patients with moderate-to-severe psoriasis.<sup>11,12</sup> Other studies<sup>13,14</sup> detected no correlation between severity of psoriasis and MS. This difference in the findings could be due to difference in study population and difference in the genetic and geographic variation.

#### **CONCLUSION**

It can be concluded from our study that severity of the psoriasis and area of affected was significantly associated with the Metabolic syndrome

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